Claims

1. A method of assessing whether a patient is afflicted with cervical cancer or has a pre-malignant condition, the method comprising comparing:

a) the level of expression of a marker in a patient sample, wherein the marker is selected from the group consisting of the markers listed in Tables 1-13, and

b) the normal level of expression of the marker in a control non-cervical cancer sample,

wherein a significant difference between the level of expression of the marker in the patient sample and the normal level is an indication that the patient is afflicted with cervical cancer or has a pre-malignant condition.

2. The method of claim 1, wherein the patient has CIN.

3. The method of claim 1, wherein the patient has SIL.

4. The method of claim 1, wherein the marker is selected from the group consisting of the markers listed in Tables 1, 4, 9, 13 and combinations thereof.

5. The method of claim 1, wherein the marker corresponds to a secreted protein.

6. The method of claim 1, wherein the marker corresponds to a transcribed polynucleotide or portion thereof, wherein the polynucleotide comprises the marker.

7. The method of claim 1, wherein the sample comprises cells obtained from the patient.

8. The method of claim 7, wherein the sample is a cervical smear.

9. The method of claim 7, wherein the cells are in a fluid selected from the group consisting of a fluid collected by peritoneal rinsing, a fluid collected by uterine rinsing, a uterine fluid, a uterine exudate, a pleural fluid, a cystic fluid, and an cervical exudate.

10. The method of claim 1, wherein the level of expression of the marker in the sample is assessed by detecting the presence in the sample of a protein corresponding to the marker.

11. The method of claim 10, wherein the presence of the protein is detected using a reagent which specifically binds with the protein.

12. The method of claim 11, wherein the reagent is selected from the group consisting of an antibody, an antibody derivative, and an antibody fragment.

13. The method of claim 1, wherein the level of expression of the marker in the sample is assessed by detecting the presence in the sample of a transcribed polynucleotide or portion thereof, wherein the transcribed polynucleotide comprises the marker.

14. The method of claim 13, wherein the transcribed polynucleotide is an mRNA.

15. The method of claim 13, wherein the transcribed polynucleotide is a cDNA.

16. The method of claim 13, wherein the step of detecting further comprises amplifying the transcribed polynucleotide.

17. The method of claim 1, wherein the level of expression of the marker in the sample is assessed by detecting the presence in the sample of a transcribed polynucleotide which anneals with the marker or anneals with a portion of a polynucleotide wherein the polynucleotide comprises the marker, under stringent hybridization conditions.

18. The method of claim 1, wherein the level of expression of the marker in the sample differs from the normal level of expression of the marker in a patient not afflicted with cervical cancer by a factor of at least about 2.

19. The method of claim 1, wherein the level of expression of the marker in the sample differs from the normal level of expression of the marker in a patient not afflicted with cervical cancer by a factor of at least about 5.

20. The method of claim 1, comprising comparing:

a) the level of expression in the sample of each of a plurality of markers independently selected from the markers listed in Tables 1-13, and

b) the normal level of expression of each of the plurality of markers in samples of the same type obtained from control humans not afflicted with cervical cancer,

wherein the level of expression of more than one of the markers is significantly altered, relative to the corresponding normal levels of expression of the markers, is an indication that the patient is afflicted with cervical cancer or a pre-malignant condition.

21. The method of claim 20, wherein the level of expression of each of the markers is significantly altered, relative to the corresponding normal levels of expression of the markers, is an indication that the patient is afflicted with cervical cancer.

22. The method of claim 20, wherein the plurality comprises at least three of the markers.

23. The method of claim 20, wherein the plurality comprises at least five of the markers.

24. A method for monitoring the progression of cervical cancer or a pre-malignant condition in a patient, the method comprising:

a) detecting in a patient sample at a first point in time, the expression of a marker, wherein the marker is selected from the group consisting of the markers listed in Tables 1-13;

b) repeating step a) at a subsequent point in time; and

c) comparing the level of expression detected in steps a) and b), and therefrom monitoring the progression of cervical cancer or a pre-malignant condition in the patient.

25. The method of claim 24, wherein the marker is selected from the group consisting of the markers listed in Tables 1, 4, 9, 13 and combinations thereof.

26. The method of claim 24, wherein the marker corresponds to a secreted protein.

27. The method of claim 24, wherein marker corresponds to a transcribed polynucleotide or portion thereof, wherein the polynucleotide comprises the marker.

28. The method of claim 24, wherein the sample comprises cells obtained from the patient.

29. The method of claim 28, wherein the patient sample is a cervical smear.

30. The method of claim 24, wherein between the first point in time and the subsequent point in time, the patient has undergone surgery to remove a tumor.

31. A method of assessing the efficacy of a test compound for inhibiting cervical cancer in a patient, the method comprising comparing:

a) expression of a marker in a first sample obtained from the patient and exposed to the test compound, wherein the marker is selected from the group consisting of the markers listed in Tables 1-13, and

b) expression of the marker in a second sample obtained from the patient, wherein the sample is not exposed to the test compound,

wherein a significantly lower level of expression of the marker in the first sample, relative to the second sample, is an indication that the test compound is efficacious for inhibiting cervical cancer in the patient.

32. The method of claim 31, wherein the first and second samples are portions of a single sample obtained from the patient.

33. The method of claim 31, wherein the first and second samples are portions of pooled samples obtained from the patient.

34. A method of assessing the efficacy of a therapy for inhibiting cervical cancer in a patient, the method comprising comparing:

a) expression of a marker in the first sample obtained from the patient prior to providing at least a portion of the therapy to the patient, wherein the marker is selected from the group consisting of the markers listed in Tables 1-13, and

b) expression of the marker in a second sample obtained from the patient following provision of the portion of the therapy,

wherein a significantly lower level of expression of the marker in the second sample, relative to the first sample, is an indication that the therapy is efficacious for inhibiting cervical cancer in the patient.

35. A method of selecting a composition for inhibiting cervical cancer in a patient, the method comprising:

a) obtaining a sample comprising cancer cells from the patient;

b) separately exposing aliquots of the sample in the presence of a plurality of test compositions;

c) comparing expression of a marker in each of the aliquots, wherein the marker is selected from the group consisting of the markers listed in Tables 1-13; and

d) selecting one of the test compositions which induces a lower level of expression of the marker in the aliquot containing that test composition, relative to other test compositions.

36. A method of inhibiting cervical cancer in a patient, the method comprising:

a) obtaining a sample comprising cancer cells from the patient;

b) separately maintaining aliquots of the sample in the presence of a plurality of test compositions;

c) comparing expression of a marker in each of the aliquots, wherein the marker is selected from the group consisting of the markers listed in Tables 1-13; and

d) administering to the patient at least one of the test compositions which induces a lower level of expression of the marker in the aliquot containing that test composition, relative to other test compositions.

37. A kit for assessing whether a patient is afflicted with cervical cancer or a pre-malignant condition, the kit comprising reagents for assessing expression of a marker selected from the group consisting of the markers listed in Tables 1-13.

38. A kit for assessing the presence of cervical cancer cells or pre-malignant cervical cells or lesions, the kit comprising a nucleic acid probe wherein the

probe specifically binds with a transcribed polynucleotide corresponding to a marker selected from the group consisting of the markers listed in Tables 1-13.

39. A kit for assessing the suitability of each of a plurality of compounds for inhibiting cervical cancer in a patient, the kit comprising:

a) the plurality of compounds; and

b) a reagent for assessing expression of a marker selected from the group consisting of the markers listed in Tables 1-13.

40. A method of making an isolated hybridoma which produces an antibody useful for assessing whether a patient is afflicted with cervical cancer or a pre-malignant condition, the method comprising:

isolating a protein or protein fragment corresponding to a marker selected from the group consisting of the markers listed in Tables 1-13;

immunizing a mammal using the isolated protein or protein fragment;

isolating splenocytes from the immunized mammal;

fusing the isolated splenocytes with an immortalized cell line to form hybridomas; and

screening individual hybridomas for production of an antibody which specifically binds with the protein or protein fragment to isolate the hybridoma.

41. An antibody produced by a hybridoma made by the method of claim 40.

42. A kit for assessing the presence of human cervical cancer cells or pre-malignant cervical cells or lesions, the kit comprising an antibody, wherein the antibody specifically binds with a protein corresponding to a marker selected from the group consisting of the markers listed in Tables 1-13.

43. A method of assessing the cervical cell carcinogenic potential of a test compound, the method comprising:

a) maintaining separate aliquots of cervical cells in the presence and absence of the test compound; and

b) comparing expression of a marker in each of the aliquots, wherein the marker is selected from the group consisting of the markers listed in Tables 1-13,

wherein a significantly enhanced level of expression of the marker in the aliquot maintained in the presence of the test compound, relative to the aliquot

maintained in the absence of the test compound, is an indication that the test compound possesses human cervical cell carcinogenic potential.

44. A kit for assessing the cervical cell carcinogenic potential of a test compound, the kit comprising cervical cells and a reagent for assessing expression of a marker, wherein the marker is selected from the group consisting of the markers listed in Tables 1-13.

45. A method of treating a patient afflicted with cervical cancer, the method comprising providing to cells of the patient an antisense oligonucleotide complementary to a polynucleotide corresponding to a marker selected from the markers listed in Tables 1-13.

46. A method of inhibiting cervical cancer in a patient at risk for developing cervical cancer, the method comprising inhibiting expression of a gene corresponding to a marker selected from the markers listed in Tables 1-13.